DOCUMENT RESUME

ED 138 040 FL 007 747

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TITLE Paradigmatic Results of a Word Association Test Administered in English and Farsi.
PUB DATE Apr 76
NOTE 9p.; Paper presented at the conference of the American Educational Research Association (April, 1976)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS Academic Achievement; *Association (Psychological); Associative Learning; Cognitive Processes; *Cognitive Tests; *English (Second Language); Language Instruction; *Language Research; Language Tests; Linguistic Competence; Native Speakers; Predictive Ability (Testing); *Second Language Learning; Test Interpretation; Tests; *Thought Processes
IDENTIFIERS Farsi

ABSTRACT

A study was carried out to test the hypothesis that a difference exists between the results of a paradigmatic/syntagmatic word association test given in an individual's native language and in his second language. The sample used in this study consists of 23 Iranian officers attending a course at Air University in Alabama. Their primary language is Farsi and their second or third language, English. All were given a free word association test, the P/S Inventory (Paradigmatic/Syntagmatic Inventory, Dinnan, 1971). The test was first administered individually to each subject in English. Four days later the same P/S Inventory was administered to the subjects in Farsi. The results revealed differences in the paradigmatic thinking patterns in the two identical tests. This study and other research suggest that when one language is clearly dominant, differences in association behavior will be exhibited. The foreign student should be aware that his English thinking patterns may be syntagmatic in nature and that shortcomings in a second language do not reflect academic inadequacy. (CFM)

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Paradigmatic Results of a Word Association Test Administered in English and Farsi

Introduction

There has been a long historical tradition for making the assumption that knowledge of overt verbal associations will tell us something about the mind. Greek philosophers developed laws of association to help explain the essence of thought. Nineteenth Century empiricists as Galton (1822-1911) and Wundt (1832-1920) held the belief that even the most complicated mental functions could be accounted for by the laws of verbal association. Twentieth Century psychologists and educators are also interested in the area of association and how it can explain cognition.

Many researchers feel the study of word association is tied to the nature of cognitive processes. Dinnan's (1971) and Brosier's (1974) research are two studies which have found significant relationships between language and academic performance. They investigated the relationship of paradigmatic response and academic achievement of children. Paradigmatic response is a measure of associative

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verbal behavior. It is a contrast, superordinate or coordinate of a given stimulus word on a free word association test. This particular study was an inquiry into the area of foreign and native language thought processes using a free word association test.

Review of Related Literature

No previous research has been directly concerned with the comparison of native and foreign language associative behavior; hence related lines of inquiry were reviewed. Literature concerning thought process specifically paradigmatic thought was reviewed and adapted for this study.

A paradigmatic response has been defined by researchers to be a response word that contrasts the given stimulus word, or is a superordinate or coordinate of the stimulus word. A word that does not contrast the stimulus is called a syntagmatic response and is considered a closure type of response. Examples of these two types of responses would be:

Stimulus	Paradigmatic Response	Syntagmatic Response
mother	father (contrast)	country
mountain	valley (coordinate)	high
land	world (superordinate)	dry

A substantial amount of studies have demonstrated a close relationship between paradigmatic response and academic achievement. Bickley (1971) and Brosier (1974) found a positively high relationship between the amount of paradigmatic responses on a free word association test and achievement of young children and adolescents. Dinnan, Bickley, and Williams (1971) when testing upper grade students with a similar free word association test found the same results. They observed a relationship between paradigmatic

responses and achievement in their student samples.

Crable (1975) found that the amount of paradigmatic responses of foreign graduate students was significantly less than native born graduate students. When she investigated the relationship of the amount of paradigmatic responses with the verbal section of the G.R.E. verbal section she found a significant positive relationship.

All these studies cited have only used an English free word association test when investigating language differences and relationships. The purpose of this study was to investigate whether or not a person exhibiting certain associative behavior in a second language would exhibit the same type of associative behavior in his first and preferred language. Penfield (1969) remarked that there are two sets of thinking patterns when dealing with another language. He felt that a person's learning a foreign language activates a series of neural connections that form a "set". These patterns or "sets" are normally kept separate by people, partly by multisensory cues associated with each language. This study's intent was to further investigate this switching of patterns. It further questioned whether these different patterns meant different types of responses on a paradigmatic/syntagmatic word association test.

Hypothesis

This study was an attempt to test the hypothesis that there exists a difference between the results of a paradigmatic/syntagmatic word association test given in English and then Farsi when taken by visiting Iranian officers. Furthermore, it is an attempt to extend the suggestive findings of Penfield (1969) and Crable (1975) to

foreign students studying in the United States.

Methodology

The sample used in this study consisted of 23 Iranian officers attending an eight week school for cultural familiarization at Air University in Alabama. Their primary language was Farsi, with English as their second or third language. All took an English Comprehension Level Test (ECL) in their country before arriving at Maxwell AFB. Selection for U.S.A training was based on their country's judgement plus on an ECL score of 70 or above (max=100).

The ages of the officers ranged from 26 to 40, with the average age being 32 years of age. Their average educational level was 13.2 years of schooling. Their country considered this group to be above average for intelligence and educational level, when compared to other males of the same age group in their country.

All Ss were given a free word association test, the P/S Inventory (Paradigmatic/Syntagmatic Inventory, Dinnan, 1971). The P/S Inventory was designed to measure the associative ability of the Ss. The results of this give an indication of whether or not the subject thinks in a contrasting paradigmatic manner, important for acadmic success.

The P/S Inventory was first administered individually to each subject in English. Four days later the same P/S Inventory was administered to the subjects in Farsi, their native language. In order to standardize administration the test instructions and stimulus words were recorded on a cassette tape recorder in both languages. The stimulus words were recorded at five second intervals so that the subject had time to quickly respond. If the subject failed to respond within the five second interval a blank was

recorded for that response.

One tape recorder was used during the English test administration. The English tape was played for the subjects during the administration and the examiner recorded the responses on paper. Two recorders were used during the Farsi administration. One recorder played the Farsi test tape and another was used to record the subject's response in Farsi. These Farsi responses were then translated to English later and scored as the English responses were.

Response associations to the thirty words were classified paradigmatic or syntagmatic according to a scoring guide of contrasts for the stimulus words (Crable, 1975). These scored responses were then compared using a two-tailed student t test.

Results

The scores for the two test results were compared and the t score was found to be 2.88. The value obtained was significant beyond the .01 level, indicating that the paradigmatic thinking patterns for the Farsi speaking officer differed when given an identical word association test in Farsi and English.

Discussion

The difference in results of paradigmatic behavior, when the language of the word association test changes, seems to suggest a switching of thinking patterns as Penfield's (1969) research implied. When a person maintains equal ability in two languages, that is, he understands and uses them equally, his associative patterns will be identical. When one language is clearly dominant, differences in association behavior will be exhibited. The Ss in this study were considered quite fluent in English so the differences,

although significant, might be expected to increase as second language proficiency descreases. Ss not very fluent in a second langauge would have difficulty making contrast associations (paradigmatic behavior) important in academic success in a language. Past research has demonstrated that it is necessary to be paradigmatic in thought to be successful in academic studies. The resurgence of bilingual education programs in the U.S. has intensified the importance of understanding the thinking patterns of foreign speaking students being forced to perform in English.

Several recommendations emerge from the results of this study. A major recommendation concerns the use of the P/S Inventory. Instruments similar to the ones employed in this study could be administered to foreign students as part of admission procedures or during initial stages of a foreign student's program. A difference index could be constructed between the English P/S Inventory and the foreign language P/S Inventory version. This would give an idea of how different paradigmatic thinking patterns are for the student in his/her language. If a large difference index is found, the student could be tutored in contrasting and associating material related to basic language communication as well as in the specific subject area.

The foreign student needs to be aware that his English thinking pattern may be syntagmatic in nature. Inability to make relations can cause failure in areas involving verbal ability, both oral and written, in a second language. The foreign born student must understand that shortcomings in a second language do not reflect academic inadequacy. Such misinterpretation could severely effect the student's self-concept.

In summary, the findings of this study suggest that: (1) word association tests presented in both dominant and secondary languages might indicate the progress of students in attaining English proficiency and, perhaps, some difference index could be constructed to guage rate of progress and, (2) word association tests are sensitive to differences in paradigmatic behavior which have previously been related to academic success.

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